



## COUNTY ADMINISTRATOR'S OFFICE

PIMA COUNTY GOVERNMENTAL CENTER  
130 W. CONGRESS, TUCSON, AZ 85701-1317  
(520) 740-8661 FAX (520) 740-8171

**December 19, 2008**

C. H. HUCKELBERRY  
County Administrator

**Mr. David Smith, Manager  
U.S. Environmental Protection Agency  
Region 9 Water Division  
75 Hawthorne St.  
San Francisco, CA 94105**

**Re: Santa Cruz River – Clean Water Act Regulatory Compliance**

**Dear Mr. Smith:**

County Administrator Chuck Huckelberry and I appreciated the opportunity to meet with you on December 10, 2008 to discuss the Environmental Protection Agency's (EPA) ongoing involvement with the determination of the Santa Cruz River's status with respect to federal jurisdiction under Section 404 of the Clean Water Act. We had previously received a copy of the EPA's December 3, 2008 letter to the Department of the Army affirming the U.S. Army Corps of Engineers determination of the two segments of the Santa Cruz River as Traditional Navigable Waters (TNWs).

You informed us of the EPA's continuing efforts to compile a broader record of the condition of the entire Santa Cruz River within the State of Arizona, including the two segments already determined to be TNWs. In an effort to assist you with your ongoing research, we offered to supply the following enclosed information:

- Recently compiled historical information prepared by Pima County's Office of Cultural Resources and Historical Preservation (attachment to the enclosed November 25, 2008 letter to Marjorie Blaine, USACOE)
- Effluent ownership conditions in Pima County that reflect our unique condition with respect to our role as wastewater treatment service provider that, under Arizona law, would ordinarily result in complete ownership of the resulting effluent when in fact we are only enjoying control over a fraction of the total quantity of effluent produced (November 21, 2008 memorandum to County Administrator re: Potential Impact of Effluent Discharges to Washes Flowing to Ak-Chin Indian Reservation).

Letter to Mr. D. Smith, U.S. EPA  
**Re: Santa Cruz River – Clean Water Act Regulatory Compliance**  
December 19, 2008

- Planning studies underway for the majority of the Santa Cruz River within Pima County under cooperative arrangements with U.S. Army Corps of Engineers (project summary descriptive information).

Information regarding these three projects can be found at these web links:

<http://www.rfcd.pima.gov/projects/elriomedio/>

<http://www.rfcd.pima.gov/projects/paseoiglesias/>

<http://www.rfcd.pima.gov/projects/tresrios/>

- Pima County's efforts to recognize and protect the region's natural environment, including particular emphasis with preservation of riparian area resources.

Sonoran Desert Conservation Plan documents available at the following sites:

<http://www.pima.gov/cmo/sdcp/reports.html>

<http://www.pima.gov/cmo/sdcp/Riparian.html>

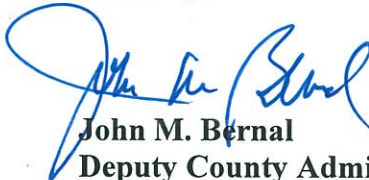
<http://www.pima.gov/cmo/sdcp/PDF/RiparianMap.pdf>

<http://www.pima.gov/cmo/sdcp/STAT/RiparianGoal.HTM>

We assure you of Pima County's interest to collaborate with the EPA in its further deliberations and particularly in seeking effective measures for the protection of the Santa Cruz River with its valuable riverine environment, including its tributaries.

Please contact me if we can provide additional information that may be of interest to you in expanding your research of the Santa Cruz River.

Sincerely,



**John M. Bernal**  
**Deputy County Administrator**

JMB:jgs

Attachments (3)

Cc: C.H. Huckelberry, County Administrator



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

DEC 3 2008

The Honorable John Paul Woodley, Jr.  
Assistant Secretary of the Army (Civil Works)  
Department of the Army  
108 Army Pentagon  
Washington, DC 20310

OFFICE OF  
WATER

Dear Secretary Woodley:

In August 2008, I designated the Santa Cruz and Los Angeles Rivers as special cases pursuant to the 1989 Army/EPA *Memorandum of Agreement Concerning the Determination of the Geographic Jurisdiction of the Section 404 Program and the Application of the Exemptions under Section 404(f) of the CWA*. EPA continues to evaluate relevant information and to coordinate with the Los Angeles District and others on this matter.

On May 23, 2008, the U.S. Army Corps of Engineers Los Angeles District determined that two reaches of the Santa Cruz River, Study Reach A from Tubac gage (USGS # 09482000) to Continental gage (USGS # 09481740), and Study Reach B from Roger Road Wastewater Treatment Plant to the Pima/Pinal County Line ("Study Reaches"), are Traditional Navigable Waters (TNWs) for purposes of the Clean Water Act ("District Determination"). As an initial phase of EPA's Special Case Review of the Santa Cruz River, we have carefully evaluated the conclusions reached in the District Determination.

The District Determination concluded that the two reaches "have the potential to be used for commercial recreational navigation activities, such as canoeing, kayaking, birding, nature and wildlife viewing." District Determination at 5. That conclusion was based on the District's consideration of the "[p]ublic access points within of (*sic*) the Study Reaches such as low river banks, bridges, and trail systems, together with their physical characteristics, such as frequency, duration, and permanency of flow." *Id.* The District Determination's analysis and evidence of susceptibility is not insubstantial nor speculative; rather, it is appropriately supported by citations to specific evidence (see, e.g., discussion of river hydrology, ongoing Corps river restoration feasibility studies, and presence of tourist resorts along the River). District Determination, pp. 2-5. Based on EPA's review, we have concluded that the District Determination is consistent with the Clean Water Act, its implementing regulations, relevant case law and policy including the EPA/Corps Rapanos guidance dated June 5, 2007, as revised on December 3, 2008. As a result of EPA's review of the District Determination and additional information available to EPA, I am affirming the Los Angeles District's determination that the two segments of the Santa Cruz River referenced above are Traditional Navigable Waters (TNWs).

EPA's determination to affirm the District's designation of the two reaches as TNWs is based on several key considerations, including:

- Evidence that the physical characteristics within the Study Reaches indicate a susceptibility for use in the future for commercial navigation, including commercial water-borne recreation. For example, river-width, when combined with flow data from relevant flow gauges, shows sufficient levels of flow in the Study Reaches to support navigation.
- Evidence that the Study Reaches, or portions thereof, have been navigated.
- Evidence of the likelihood of future commercial navigation use, including two ongoing Corps of Engineers river restoration feasibility studies.
- Visual inspection by EPA during site visits to Study Reaches.

Based upon the information before me, I conclude that the Study Reaches are susceptible to being used in the future for commercial navigation, including commercial water-borne recreation. That conclusion is supported by evidence that is clearly documented, and not insubstantial nor speculative. Therefore, I find that this determination is consistent with the provisions of the December 3, 2008 Rapanos guidance<sup>1</sup>.

I have asked EPA Region 9 to begin immediately to implement this decision and request that you also transmit this determination to the Los Angeles District so it may be used by the Corps to complete pending and future jurisdictional determinations for the Santa Cruz River watershed.

In consultation with the Los Angeles District, EPA is proceeding with its geographic jurisdictional analysis of the remainder of the Santa Cruz River and the Los Angeles River and will make decisions for both when our review is complete. I appreciate the Corps assistance in this important evaluation. Please feel free to call me or have your staff contact my Chief of Staff, Greg Peck, with any questions regarding this matter.

Sincerely,



Benjamin H. Grumbles  
Assistant Administrator

cc: Wayne Nastri, Regional Administrator, EPA Region 9  
Stephen A. Owens, Director, ADEQ

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<sup>1</sup>EPA has not determined whether any other portion of the Santa Cruz River is also a TNW. The Agency will continue to evaluate that question for those other portions. EPA will also evaluate whether the River, or any portions thereof, satisfy any other provision of EPA's regulatory definition of "waters of the United States." EPA will also proceed with our geographical jurisdictional analysis of the Los Angeles River.



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C.H. HUCKELBERRY  
County Administrator

November 25, 2008

Marjorie Blaine  
Senior Project Manager/Biologist  
United States Army Corps of Engineers  
Los Angeles District Regulatory Division  
5205 East Comanche Street  
Tucson, Arizona 85707

Re: Section 404 Clean Water Act Program Administration and the Santa Cruz River

Dear Ms. Blaine:

It was a pleasure meeting with you and Colonel Magness, along with Deputy County Administrator John Bernal, on Friday, November 21, 2008. I appreciate you taking time out of your busy schedule to meet with us.

As I indicated, my concern regarding Section 404 Clean Water Act program administration is related to adequate, accurate and timely review and permitting. I certainly understand there are extenuating circumstances in all cases, and the time required to review, consider and issue permits is directly related to the quality and timeliness of agency or property owner submissions.

I would appreciate your contacting me directly if you feel any of the submissions of the County fall below the highest level of quality and performance, or if we, in your opinion, are not submitting timely submissions and providing sufficient and reasonable time for reviews. I have stressed to our technical and management staff the importance of timely, accurate and superior submissions so that you do not have to waste your valuable time correcting our mistakes or incompleteness.

Finally, I am enclosing an historical analysis of the Santa Cruz River completed by our Cultural Resources staff. It chronicles the historic and cultural importance of the Santa Cruz River over the last 300 years. This river corridor has been an important source of cultural exchange and commerce over this period. Please feel free to forward this historic and cultural analysis of the

Marjorie Blaine

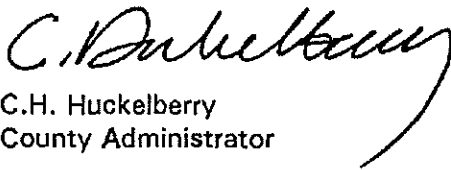
Section 404 Clean Water Act Program Administration and the Santa Cruz River

November 25, 2008

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importance of the Santa Cruz River Corridor to those officials of the Environmental Protection Agency who may be conducting a review of the Santa Cruz River as a "traditional navigable waterway" or a river corridor with national and international significance.

Sincerely,



C.H. Huckelberry  
County Administrator

CHH/jj

Attachment

c: Colonel Thomas Magness, District Commander, Army Corps of Engineers, Los Angeles District  
John Bernal, Deputy County Administrator - Public Works  
Nanette Slusser, Assistant County Administrator for Policy - Public Works  
Priscilla Cornelio, Transportation Director  
Suzanne Shields, Regional Flood Control District Director  
Linda Mayro, Cultural Resources Manager

## **The Santa Cruz River...**

### **Corridor Culture, Conquest, & Commerce**

The following brief report highlights what some people have observed and written about the Santa Cruz River and how its course served as a corridor of cultural exchange and commerce over the last 300 years. As such, the river has fundamentally shaped our place – the Santa Cruz River valley – and we have shaped it.<sup>2</sup>

Our river, from its origins in the San Rafael Valley, in Arizona flows south into Sonora, Mexico, and north again to the Pinal County line and eventually into the Gila River. It has ebbed and flowed, and meandered and changed course, down-cut, created swamps, flooded, and dried up many, many times due to climate and topography. Overall, the Santa Cruz River may have come into existence as a flowing stream more than half a million years ago since taking its current course with the formation of the Basin and Range Province that we recognize today.

Whatever its state of being or configuration, the Santa Cruz River existed for aeons before the first coming of man to this place, perhaps some 10,000 years ago, a time of significant climate change at the end of the last Ice Age. To quote Michael F. Logan in his book, The Lessening Stream, "The debate over the sequence and extent of climate change takes place with a range of consensus." Earlier climate patterns were probably wetter, with heavier winter precipitation resulting in more woodland trees and shrubs such as pinyon and juniper. The debate centers around when this wetter pattern changed to dryer circumstances. No doubt the river changed as a consequence of the changing weather patterns." Researchers like Julio Betancourt in Tucson's Santa Cruz River and the Arroyo Legacy notes that many cycles of arroyo cutting and aggradation have affected the river and its flows. Human population, water consumption, channel stabilization, and modifications to the landscape have no doubt amplified these changes.

The river - its water and resources- was the reason all peoples - Paleo-indian hunters, Archaic hunter-gatherers, Early agriculturalists, Hohokam, O'odham, Spanish, Mexican, and American – followed its course and settled its banks. It became a corridor of cultural interaction, conquest and commerce, and it has remained a point of reference, a presence, and a defining factor in the human history of this region and the development of today's cities and towns.

#### **Early Spanish Accounts:**

Cultural corridors are the historical links and axes of inter-cultural dialogue and exchange of ideas, beliefs, knowledge and skills, as well as cultural goods and expressions. Within fifty years of Columbus' journey to the new world, Spain's domain had spread to include South America, Central America, present day Mexico and into North America. A wave of conquistadors overpowered the native peoples and their lands, and their routes of conquest were the river systems where native peoples had settled. As the conquest spread along these cultural corridors,

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<sup>2</sup> Note - In the compilation of this chronology, first hand accounts and references will be identified where possible. Excerpts from other sources such as Logan, Betancourt and other scholarly works are also cited.



the Spanish Crown focused on making converts and tax paying citizens of the indigenous peoples they conquered, and Jesuit priests were sent into the expanding empire with their priority of converting souls to Christianity.

Although Santa Fe was established some 80 years earlier, the first explorations and written descriptions of the Rio Santa Maria de Soamca (later named Santa Cruz River) are known from the Spanish explorer and missionary Fr. Francisco Eusebio Kino and Juan Mateo Manje who traveled north along the river following Indian trails long-used for trade and travel, first reaching Tucson in 1692. Kino introduced cattle, sheep, horses, wheat, peaches, lentils, figs, onions, and other crops to communities along the river. New crops and animals set up the foundation for modern agriculture and livestock raising and commerce among some 20 mission communities between what is today Mexico and the farthest reaches of New Spain in today's United States.

Kino repeatedly visited six Indian settlements between San Xavier and Rillito, and describes fields being irrigated from the main stem, suggesting that perennial flow could be directed across the floodplain with minimal effort. [Betancourt 1990 provides these descriptions.]<sup>3</sup>

In 1697, Kino and Capt. Juan Mateo Manje traveled south along the Santa Cruz, reaching a sizeable settlement in the vicinity of Tucson where Manje notes:

**...after going six leagues [ca. 24 km], we came to the settlement of San Agustin de Oiaur where we were lodged in a big house they had built for us and big enough for all .... Here the river runs a full flow of water, though the horses forded it without difficulty. There are good pasture and agricultural lands with a canal for irrigation.... We counted 800 souls in 186 houses.... On the 26th. after having heard mass and saying goodbye to the Indians, we continued south over the plains, passing along the river bed which submerges here.**

Kino described the agricultural potential at San Xavier on October 29, 1699:

**The fields and lands for sowing were so extensive and supplied with so many irrigation ditches running along the ground that the father visitor said they were sufficient for another city like Mexico.**

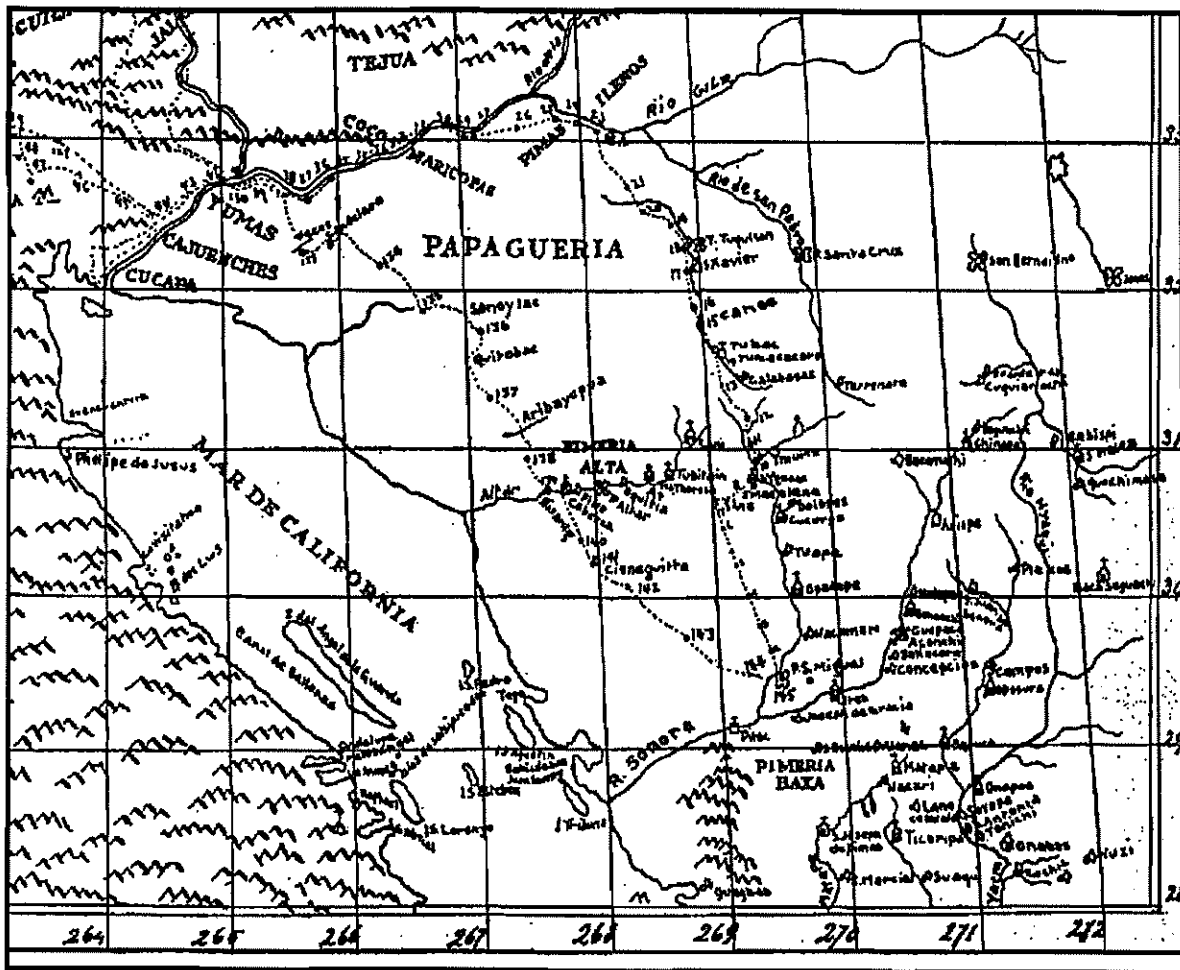
Spanish explorations into southern Arizona continued into the eighteenth century. By 1752, a presidio had been established at Tubac, and in 1767, Franciscans replaced Jesuits. To outdo their predecessors, Franciscans pushed to explore an overland route to California, setting up a line of missions along the way to promote trade and revenues for Spain and to stem Russian settlement in California.

Fr. Garces, a Franciscan priest traveled extensively in Sonora, Arizona, and California in the years 1768-81, and kept daily diaries and mapped the course of several expeditions to bring Catholicism to native peoples. His expeditions confirmed these routes of travel with the deliberate intention of uniting the distant Spanish settlements from New Mexico to California through trade networks and religion.

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<sup>3</sup> Betancourt 1990





The 1777 map of Fr. Font above chronicled the route of the Anza expedition to found a colony in San Francisco and clearly shows routes of travel established by Garces on his earlier expeditions. Settlements and other named places show campsites where water and resources were available along the way.

Font, in his journal entry describes the Santa Cruz River north of La Canoa:

We set out from La Canoa at two in the afternoon, and at five halted at Punta de los Llanos, having traveled 3 leagues [12.5 km] to to the north-northwest. At the campsite [near Sahuarita] and in the plains which follow there is grass, but no water.... This is a large pueblo of Sobaypuri Pima Indians [At San Xavier]. Once it was very large, but now it is much depleted by the hostilities of the Apaches, and more especially because of its waters, which are very injurious, for they are very turgid and salty, so much indeed that a Jesuit father showed by experiment that a bottle distilled by alembic left two ounces of salt and sediment.

These descriptions of the river show mission settlements were established along the Santa Cruz River where river flows were most reliable and where the greatest populations were centered to provide labor and protection against Apache raiding. Jesuit missions were established at Guevavi in 1691 and San Xavier del Bac in 1700. Visiting missions, known as *visitas*, were established at Tumacácori in 1691, San Agustín in 1700, and Calabazas in the 1750s.

While the route of travel and trade along the Santa Cruz River was well established by the later 1700s, Apache raiding was a constant threat to the area. Concerns about the overall security of the northern frontier led the Spanish military to establish a new presidio was needed along the San Pedro River, and the Terrenate Presidio was constructed in 1776. That same year, the garrison at Tubac was moved north to Tucson.<sup>4</sup>

In the 1780s, Spain issued a new Indian policy that provided Apaches with “horses, food, guns and ornaments” in exchange for an end of raiding. This resulted in a period of relative peace, with the Manzo Apaches taking up residence north of the Tucson presidio.

The priests at San Xavier began construction of a new, grand church in 1783, and afterwards, the trained workers probably moved to the Mission of San Agustín del Tucson. In 1800, work began on a new church at Tumacácori, that would be completed in the 1820s.

At the end of the 18<sup>th</sup> century, the colonial empire of Spain was failing, and efforts were made in New Spain to establish trade routes for the exchange of goods between the province of Sonora and Santa Fe. This route to Santa Fe would not be effectively established, and the Anza expedition of 1775 while successful in establishing a Spanish presidio and settlement at San Francisco did not result in a trade route where substantial goods were moved from Sonora to California.

The relative isolation of this area quite distant from large commercial centers to the south fostered greater self-sufficiency and a reliance on cooperation and interaction among these northernmost settlements. Their ability to survive and even create surpluses for local trade was the river.

### **The Mexican Period:**

Political turmoil was developing in Mexico, as many people sought independence from Spain. Soldiers from Tucson were sent to Mexico in the 1810s, to fight against the rebels. Mexico gained its independence in 1821. The Mexican government was unable to maintain the same level of spending, and support for the military at Tucson and Tubac declined, as did work at the nearby missions. Increasing Apache raids caused ranches, land grants, missions, and mines to be abandoned, and even settlers at Tubac evacuated to Tucson. For a time in the 1840s, Tucson was the only occupied settlement.

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<sup>4</sup> Portions excerpted from “The Feasibility Study for the Santa Cruz Valley National Heritage Area,” 2005.

Despite the threat of Apache raiding, in 1803, there were four pack trains bringing trade goods from Mexico, Europe and elsewhere to the Tucson presidio from Arispe in Sonora. That said, settlements in the Santa Cruz Valley were mostly dependent on locally made goods, and they were entirely dependent on the Santa Cruz River to feed themselves. Land grants served to stimulate food crops of corn, wheat and other crops and livestock production, which in turn, placed increased demands on the river.

In August 1804, Manuel de Leon, second ensign at Tubac, and Jose de Zuniga, captain of the Tucson presidio describe the river. Leon noted:

Our river is the Santa Cruz, which takes its name from the Santa Cruz presidio at its headwaters, to the southeast of us. Only in the rainy seasons does it enjoy a steady flow. During the rest of the year, it sinks into the sand in many places. Another, which we call the Sonoita River, takes its name from the abandoned Pima mission of the same name. It flows steadily for the first fifteen miles of its westward course, but sinks beneath the sand seven to eight miles before joining the Santa Cruz. This confluence provides water for Tumacacori and Tubac and collects in the marsh lands around San Xavier in great abundance.

Zuniga gives a similar account from Tucson:

The rivers of the region include the Santa Catalina [Rillito River], five miles from the presidio, which arises from a hot spring [Agua Caliente] and enjoys a steady flow for ten miles in a northwesterly direction, but only in the rainy seasons. It is 33 feet wide near its headwaters. Our major river, however, is the Santa Maria Suamca [Santa Cruz River], which arises 95 miles to the southeast from a spring near the presidio of Santa Cruz. From its origin it flows past Santa Barbara, San Luis, and Buenavista, as well as the abandoned missions of Guevavi and Calabazas. the Pima mission at Tumacacori, and the Tubac presidio. When rainfall is only average or below, it flows above ground to a point some five miles north of Tubac and goes underground all the way to San Xavier del Bac. Only during years of exceptionally heavy rainfall does it water the flat land between Tubac and San Xavier.

#### **The American Period:**

The Mexican War erupted in 1846, and Colonel Kearny and the Army of the West were dispatched to occupy the borderlands of Mexico. A supply route and wagon trail was needed from New Mexico and points east to California, which was finally to be established by the Mormon Battalion under Captain Phillip St. George Cooke. He describes the route from south of San Xavier to Tucson as follows:

The thicket soon became a dense forest of mesquite two feet to 0.61 m in diameter. After marching four or five miles, we came to water; and while waiting some time for the footmen to come up, I for the first time spoke freely to the officers and asked their opinion on the prudence of continuing farther in the dense covert which we had found and which the guide stated became worse all the way to the pueblo.

Departing Tucson for the Gila, Cooke also described the road to the Point of the Mountains:

To my surprise, I found water seven miles from town [Nine Mile Water Hole] and plenty of it, instead of an insufficiency .... The next three miles down the dry creek of Tucson were excessively difficult, with deep sand and other obstacles. Then our beautiful level prairie road was much obstructed by mesquite.

After the war was over, a column of U.S. Army Dragoons traveled the Santa Cruz in 1848 en route to Los Angeles. Record of Lieut. Cave J. Coutts:

The river, or more properly, branch or creek, disappears in its sandy bottom a little below Ft. Tubac [at Canoa] and probably does not rise again, its course is northeast, and probably turns to the San Pedro, that or Gila, as it was left to our right. The whole country between the mountains, and from Tubac to Tucson, is remarkably sandy and requires very strong streams to run any distance. Cannot find the Santa Cruz River in any map, reason for thinking it does not rise again.

Approaching San Xavier, he notes an increase in the size and density of mesquite and is forced to amend his earlier conclusions about the river's flow:

Rio is called San Xavier, though the same as Santa Cruz, which disappears near Ft. Tuhac and rises in a spring above Xavier del Bac from whence is called San Xavier .... Marched from Ft. de Tucson [sic] about 8 on the morning of 27th. The Church, or Mission as it was at one time, stands some 112 mile 10.8 km] from the town, on the other side of the branch of San Xavier [then the mainstem of the Santa CNZ]. The town itself is called San Augustine, this mission Tucson [sic]. About here, is where the branch disappears into the sandy desert which we have passed since leaving. The bed of it can be traced very little farther.

The discovery of gold in Californian resulted in increased travel through southern Arizona in 1849 and 1850. Many of the forty-niners brought trade goods to exchange for food, and Tucson residents were eager to barter. The routes of travel established by Spain and Mexico continued as the principal corridors of exchange and commerce and ushered in a new wave of cultural conquest as Americans moved west seeking fortune and new opportunities. The Santa Cruz River and its course to the Gila River and California became well-established as a highway of westward expansion and commerce.

Descriptions of the Santa Cruz River reveal its variability:

John E. Durivage, a correspondent with the New Orleans Daily Picayune, wrote in 1849:

We camped eight miles from the last rancho [Tubac] having traveled twenty-five miles during the day. Just below this point river sinks into the sand and appears again only at intervals for many miles. Here the river is crossed for the last time for fifteen leagues, although the cottonwoods marking its course are frequently in sight.... It [Tucson] is eight miles from San Xavier and a miserable old place garrisoned by about one hundred men. Flour and a small quantity of corn were all that could be procured. The Santa Cruz river flows within half a mile of the town and then takes a ... bend. Near the town are the remains of an old mission [San Agustin], the gardens of which are well stocked with fruit. The whole valley is exceedingly fertile.

One of the more detailed journals was kept by H.M.T. Powell, who followed the Santa Cruz on and describes the valley north of Tubac and at Tucson:

[north of Tubac]....we crossed the river to left bank .... three or four hundred yards below where we crossed the river sinks into the sand, and where it rises again we do not know. It sinks in the bend northeast of the point of the double peak mountains.... The road from San Xavier to camp, 1 mile short of Tucson, was very level, running throughout mesquite, etc. We encamped in a grassy bottom, much covered with saline efflorescence. The river has divided to a mere brook, the grassy banks of which are not more than 2 yards apart.

John Russell Bartlett, named to head the new Boundary Commission following the Treaty of Guadalupe Hidalgo, set out in 1852 to survey the new border with Mexico and followed the old trail along the Santa Cruz south from the Pima villages on the Gila. He writes:

.... camped eight miles from Tucson [at the Nine Mile Water Hole].... en route to Tucson, wagons mired in crossing arroyos; in Tucson camped on the banks of the Santa Cruz River, where there was an abundance of grass.... In addition to the river alluded to, there are some springs near the base of hill [Sentinel Peak] a mile west of the town, which furnish a copious supply of water.... the bottomlands are here about a mile in width. Through them run irrigating canals in every direction, the lines of which are marked by rows of cottonwoods and willows, presenting an agreeable landscape.... [left Tucson, heading south and] soon entered a thickly wooded valley of mesquite.... Near [San Xavier] is a fertile valley, a very small portion of which is now tilled, although from appearances, it was all formerly irrigated and under cultivation.... Leaving the village, we rode on a mile [1.6 km] further and stopped in a fine grove of large mezquit [sic] near the river, where there was plenty of grass.... we resumed our journey along the valley as before, through a forest of mezquit trees....

Commerce in Tucson grew with the increased needs of overland transport to California. The ancient corridor of the Santa Cruz River would soon become the major route of stage coach travel and freight transport from points east to the Gila to Yuma and California. Known as the Fort Yuma Road, no fewer than seven commercial routes were established, the first of which in 1857 was named "The Jackass Mail Route," or San Antonio and San Diego Mail Line, followed by the Butterfield Overland Mail; Texas and California Stage Line; Southern Pacific Mail Line; National Mail & Transportation Co.; the Arizona Stage Company; and Tucson, Arizona City, and San Diego Stage Co. The coming of the railroad to Tucson in 1880 ended the overland stage routes but short lines persisted linking the settlements along the Santa Cruz River from Mexico to the Gila River.

One early traveler who journeyed to Tucson in 1858 was Sam Hughes who later would have a profound effect on the river and commerce in the region. Hughes recalled that in 1859:<sup>5</sup>

The waters of the Santa Cruz were so deep that a flat boat could be navigated probably clear to the Gila at Maricopa, and the Rillito was a mile wide.

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<sup>5</sup> Arizona Mining Index, Feb. 27, 1886 cited in Betancourt 1990.

Hughes makes a similar statement about the flow of the river in 1868 that was reported in the *Arizona Daily Star* in 1891:

**The Santa Cruz and other rivers which empty into the Gila were all running high and so great was the snow and rainfall during that season and the two years following that the Santa Cruz flowed a surface stream from its source to the Gila during 1868, 1869, and 1870, something unheard of since, as the stream is subterranean more than three-fourths of the length of the valley through which it flows.**

In his 1869 book, *Adventures in Apache Country*, J. Ross Browne describes his journey along the Santa Cruz River from Tucson to Tubac:

**The valley of the Santa Cruz is one of the richest and most beautiful grazing and agricultural regions I have ever seen. Occasionally the river sinks, but even at these points the grass is abundant and luxuriant. Mesquit and cotton-wood are abundant, and there is no lack of water most of the way to Santa Cruz [in Sonora].**

The 1870s saw the intensification of agricultural and commercial enterprise and a burgeoning population in Tucson. Dams were built to impound the Santa Cruz River waters into Silverlake and Warner's Lake for irrigation and to power mills, making water less available downstream. By the mid 1880s, disputes over water escalated and lawsuits were filed and a judgment was issued giving land owners south of St. Mary's Road prior rights. Lands north of the road would only receive water when the southern fields were fully irrigated.

Floods in 1886, 1887, and 1890 and the earthquake of 1887 significantly affected the Santa Cruz River, but Sam Hughes' ditch built to intercept the flow north of St. Mary's Road caused the most significant changes. During these floods, Hughes' ditch served as a head-cut causing the river to cut a deep channel and migrate southward washing out the lakes and leaving agricultural fields high and dry. Tucson now had its entrenched channel.

Following the floods, more intensive water harvesting methods ensued to establish a reliable water source for Tucson and to irrigate the agricultural lands. Using surface flows, wells, and ground water pumping – the Allison Brothers West Side canal, the Tucson Water Company Cook well at San Xavier, the Allison Brothers flume and East Side canal, Manning's artesian wells and canal at Sentinel Peak, the Tucson Farms Company Crosscut, the Flowing Wells Irrigation District, Cortaro Farms Irrigation District and the Post Farms Project all intensified water usage dropping the water table considerably and diminishing surface water flows in the river.

While many of these historic accounts were first-hand observations, and what was observed and recorded varied considerably due to season, weather cycles, and the geology of the Santa Cruz Valley. Despite these accounts, there is general consistency over these years as to where river flows were more reliable – south of Canoa, at San Xavier north to Tucson, and then somewhat less reliably north to Point of the Mountain at Los Morteros. The area from north of Canoa to San Xavier apparently had little surface water, reflected by the settlements that were able to persist from Hohokam to modern times.

To conclude, the Santa Cruz Valley connecting Arizona and Sonora Mexico region has been, and continues to be, an important borderlands corridor for cultural exchange, commerce, conquest, and successive waves of new settlers. The Santa Cruz River was the route they followed and the valley became the homeland to many peoples for millennia.

The river has flooded and dried up time after time, but it is the river corridor that remains the constant factor in defining our region. Along the river course, maize agriculture spread northward from Mesoamerica through this valley some 4,000 years ago. The early farming culture that flourished in the valley for the next two millennia developed the earliest pottery, canals, and villages in western North America. Later in prehistory, the valley was a boundary between the Hohokam culture spreading south along the river, with its core area in the Phoenix Basin, and the Trincheras culture centered in northern Sonora. When the first Spanish colonists and Jesuit missionaries arrived in the late 17th century, they found numerous villages of the Sobaipuri Pima (O'odham) Indians farming along the riverbanks. Over the next 150 years the Spanish and then the Mexicans established cattle ranches, farms, mines, missions, and presidios (forts) on this northern frontier, and with their O'odham allies defended them from constant Apache attacks. In 1775, Captain Juan Bautista de Anza led a group of soldiers and colonists through the valley before bearing westward to reach California and establish a settlement at San Francisco. Late 19th-century Anglo ranchers also braved the Apaches to develop a ranching industry in the valley. And finally, industrialists worked to harness the river and its water for our ever-growing population.

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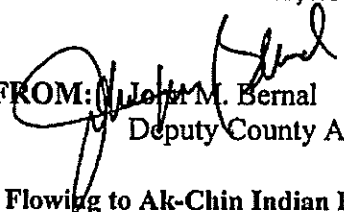
# MEMORANDUM

## Public Works Administration



DATE: November 21, 2008

TO: C.H. Huckelberry  
County Administrator

FROM:  John M. Bernal  
Deputy County Administrator

RE: Potential Impact of Effluent Discharges to Washes Flowing to Ak-Chin Indian Reservation

As part of the ADEQ review of water quality standard conducted approximately every three years as part of the process called their 2008 Triennial Review, ADEQ has proposed a prohibition of effluent discharges to washes that flow to the Ak-Chin Indian Reservation. Specifically the effluent discharged by the Ina Road and Roger Road Water Reclamation Facilities flow north in the Santa Cruz River channel into Pinal County, then into and through the Green Canal to the Green Wash which connects to the Santa Rosa Wash which flows to the Ak-Chin Indian Reservation. The Santa Rosa Wash is approximately 70 miles from the Ina Road WRF discharge. At times in the past, the Ina Road WRF effluent has travelled as far as 50 miles downstream in dry weather and has flowed past the Ak-Chin Indian Reservation during wet weather flow.

As part of the Triennial Review process, Pima County and other utilities in Pinal County have questioned ADEQ's legality in proposing the prohibition and voiced concern about the extremely high costs to develop zero discharge project needed to comply with the prohibition. Consultants to the Pima County Regional Wastewater Reclamation Department have estimated that zero discharge options would cost in excess of \$300 million. Probably due to the concerns raised, ADEQ has recently issued its final recommendations which postpone the prohibition until the next Triennial Review process, perhaps three years away. Instead, ADEQ has proposed that all discharging entities seeking discharges, in or near these streams, that may flow onto the Ak-Chin Reservation should promptly engage the Ak-Chin Community in discussions. The Department expects that existing discharges will maximize disposal options to manage effluent flows to prevent them from reaching Reservation lands. ADEQ will not issue permits for discharges onto Ak-Chin lands. Instead, ADEQ proposes to move forward with the prohibition included in a subsequent rulemaking. The ADEQ recommendations go to the Governors Regulatory Review Committee (GRRC) which will hold a final hearing in December before adoption. It is possible that the Ak-Chin Indian Reservation may object to ADEQ's relaxation of the prohibition.

Pima County has taken the position that any effluent discharge prohibition, if adopted, is the responsibility of the effluent owners to develop separate or joint methods to comply. Specifically, the 1979 City/County Merger Intergovernmental Agreement allocated 90 percent of the effluent discharged to the Santa Cruz River to the City of Tucson. Subsequently, the City and the County contracted 28,200 acre feet of the effluent to the U.S. Department of the Interior Bureau of Reclamation (BOR) in the Southern Arizona Water Rights Settlement Act (SAWRSA). These agreements resulted in approximately 41.33 percent of the effluent discharged being owned by the Federal Government, approximately 32.28 percent owned by the City of Tucson,

Memo to C.H. Huckelberry, County Administrator  
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Conservation Effluent Pool (CEP) owns 14.66 percent, Metropolitan Domestic Water District owns 3.96 percent, Town of Oro Valley 3.37 percent and the balance of 4.40 percent owned by Pima County.

In anticipation of the need to engage other effluent owners in this matter, RWRD has initiated meetings with the BOR and the City to discuss the development of an actual constructed recharge project that will help in complying with the prohibition if and when it is exacted. As a result of the meeting that you attended with us on Thursday, November 20 with the Bureau of Reclamation on this subject, we have suggested that BOR arrange a meeting with us and the City of Tucson to determine whether a three-party arrangement is feasible to advance a constructed recharge project. If the BOR can secure a commitment to have Mike Hein, Tucson City Manager, join us at such a meeting, I recommend that you plan to join us as well. I will keep you informed on any progress in scheduling such a meeting.

If you have any questions on this matter, please contact me.

JMB/jgs

Cc: Mike Gritzuk, Regional Wastewater Reclamation Department Director